

What is claimed is:

1        1. In the transfer of heat from at least one heat source mounted on a planar support to a  
2            heat sink radiating into the ambient,  
3        the improvement comprising:  
4        at least two parallel beam members each positioned in contact with said heat source,  
5            each said beam member further having side sheets thinner than said beam members,  
6            separated by said beam member with each said side sheet fastened along the edges  
7            of said beam, and,  
8        means for directing an ambient coolant over each said beam between said side sheets.

1        2. The transfer of heat improvement of Claim 1 wherein said sheets are made of at least  
2        one of heat conducting materials taken from the group of copper, aluminum, and graphite  
3        fiber composite.

1        3. The transfer of heat improvement of Claim 2 wherein said sheets are in a thickness  
2        range from 0.01 to 5 micrometers.

1        4. The transfer of heat improvement of Claim 3 wherein said sheets are mounted on said  
2        beam member by a technique taken from the group of soldering, brazing, welding, or gluing.

1        5. The transfer of heat improvement of Claim 1 wherein compliance is introduced into the  
2        interface with the lower face of said beam member through an extension of said sheets and  
3        the folding of the edges of those sheets into the interface with the lower face of said beam  
4        member.

1        6. The transfer of heat improvement of Claim 5 wherein said compliance is enhanced  
2        through at least one technique taken from the group of: introducing thermally conductive  
3        grease between said folded edges into said interface with said lower face of said beam  
4        member; introducing increasing resilience members between said folded edges and said  
5        lower face of said beam member; and, the use of low melting point solder at said folded  
6        edges at said lower face of said beam member.

1        7. The transfer of heat improvement of Claim 6 including heat pipe heat transfer through  
2        heat pipes entering through and exiting from said sheets.

1        8. The transfer of heat improvement of Claim 7 including heat pipe heat transfer through  
2        heat pipes entering through and exiting from said sheets and a spring force applied  
3        perpendicular to said interface of the lower surface of said beam .

1        9. In the transfer of heat from at least one heat source mounted on a planar support to a  
2            heat sink radiating into the ambient,  
3        the improvement comprising:  
4            a stacked heat transfer structure including at least a first level having at least two parallel  
5            beam members each positioned in contact with said heat source and each supporting  
6            at least one superimposed subsequent level,  
7            each said beam member in each said level further having side sheets thinner than said  
8            beam members, separated by said beam member with each said side sheet fastened  
9            along the edges of said beam,  
10          heat pipe heat transfer with heat pipes entering through and exiting through said sheets  
11            and serially and passing over said levels, and,  
12          means for directing an ambient coolant over each said beam between said side sheets.